AMENDMENTS TO THE CLAIMS

1–7.   (Cancelled).

8. (Currently Amended) ~~An~~ A transport network element in a network system ~~having a plurality of communicatively interconnected transport network elements,~~ each ~~the~~ transport network element comprising:

a traffic selector configured to switch a the transport network element between ~~listening to network traffic received~~ receiving traffic over a primary traffic circuit and ~~listening to network traffic received~~ receiving traffic over a secondary traffic circuit;

a split module configured to send ~~output~~ traffic either to the primary traffic circuit or to the secondary traffic circuit; and

an agent configured to ~~switch~~ control the traffic selector to switch between the primary traffic circuit and the secondary traffic circuit, and to ~~exchange messages with a remote agent associated with a remote transport network element to~~ control activation and deactivation of the secondary traffic circuit by exchanging messages with a corresponding remote agent associated with a remote transport network element, the ~~messages comprising~~ agent being further configured to:

switch the traffic selector to receive traffic on the secondary traffic circuit, and send an Activate message to the remote agent to activate the secondary traffic circuit ~~and to communicate the completion of the secondary traffic circuit activation to the remote agent~~ if the secondary traffic circuit is not already activated, responsive to detecting a failure on the primary traffic circuit;

switch the traffic selector to receive traffic on the primary traffic circuit, and send a RevertRequest message to the remote agent to request the remote agent to

deactivate a the previously activated secondary traffic circuit, responsive to

detecting that the failure on the primary traffic circuit no longer exists; and

send a Revert message to the remote agent to deactivate the secondary traffic circuit

if the traffic selector is already switched to receive traffic on the primary traffic

circuit, responsive to receiving a RevertRequest message from the remote agent.

9. (Currently Amended) The ~~network system~~ transport network element of claim 8 wherein the agent is configured to detect a failure at an input of the primary traffic circuit.

10-12. (Cancelled).

13. (Currently Amended) The ~~network system~~ transport network element of claim ~~12~~ 8 wherein the agent comprises logic to implement a sub-network connection protection ~~mechanism~~ function having a NoRequest state and [[a]] an AutoSwitch state.

14. (Currently Amended) The ~~network system~~ transport network element of claim 13 wherein the ~~logic~~ sub-network connection protection function, upon entering the NoRequest state, indicates that no failure is detected at ~~the~~ an input of the primary traffic circuit and that the traffic selector is switched to receive the network traffic over the primary traffic circuit.

15. (Currently Amended) The ~~network system~~ transport network element of claim 14 wherein the ~~logic~~ sub-network connection protection function, upon entering the AutoSwitch state, indicates that a failure has been detected at the input to the primary traffic circuit and that the traffic selector is switched to receive the network traffic over the secondary traffic circuit.

16. (Currently Amended) The ~~network system~~ transport network element of claim 15 wherein the agent is configured to switch the sub-network connection protection ~~mechanism~~ function to the NoRequest ~~State~~ state responsive to receiving a Revert message from a remote agent.

17. (Currently Amended) The ~~network system~~ transport network element of claim 8 wherein the network comprises an Synchronous Digital Hierarchy (SDH) transport network.

18. (Currently Amended) A method of ~~activating and deactivating~~ <u>operating a transport network element to activate and deactivate</u> a pre-programmed secondary traffic path in a transmission network having ~~a plurality of communicatively interconnected~~ <u>an input</u> transport network element ~~elements~~ <u>and an output transport network element</u>, each transport network element including an agent to control <u>the</u> activation and deactivation of a primary traffic circuit and a secondary traffic circuit <u>between the input and output transport network elements</u>, the method comprising:

switching to receive traffic on the secondary traffic circuit, and sending an Activate message from a first transport network element to a second transport network element to activate a <u>the</u> secondary traffic circuit that interconnects the first and second transport network elements <u>if the secondary traffic circuit has not already been activated, responsive to detecting a failure on the primary traffic circuit</u>;

<u>switching to receive traffic on the primary traffic circuit, and</u> sending a RevertRequest message from the first transport network element to the second transport network element to request deactivation of the secondary traffic circuit at the second transport element<u>, responsive to detecting that the failure on the primary traffic circuit no longer exists</u>; and

sending a Revert message from the first transport network element to the second transport network element to ~~indicate that~~ <u>deactivate</u> the secondary traffic circuit <u>at the second transport element if the secondary traffic circuit</u> has been deactivated at the first transport element<u>,</u> responsive to receiving a RevertRequest message from the second transport network element.

19. (Currently Amended) The method of claim 18 further comprising:

detecting a failure at an input to a primary traffic circuit associated with the first transport

network element;

activating a sub-network connection protection ~~mechanism~~ <u>function</u> at the first transport

network element responsive to detecting the failure, the sub-network connection

protection ~~mechanism~~ <u>function</u> assuming:

a NoRequest state to indicate that no failure is detected at the primary traffic circuit, and

that the first transport network element is configured to receive network traffic over

the primary traffic circuit; and

an AutoSwitch state to indicate that a failure has been detected at the primary traffic

circuit, and that the first transport network element is configured to receive the

network traffic over the secondary traffic circuit.

20. (Currently Amended) The method of claim 19 wherein activating a sub-network connection

protection ~~mechanism~~ <u>function</u> comprises generating the sub-network connection protection

~~mechanism~~ <u>function</u> if the sub-network connection protection ~~mechanism~~ <u>function</u> does not

already exist.

21. (Currently Amended) The method of claim 20 further comprising:

switching the sub-network connection protection mechanism to the AutoSwitch state

responsive to detecting ~~an~~ <u>the</u> error;

switching a traffic selector at the first <u>transport</u> network element to receive the network traffic

over the secondary traffic circuit; and

sending the Activate message.

22. (Currently Amended) The method of claim 21 further comprising:

detecting when the failure no longer exists;

switching the sub-network connection protection ~~mechanism~~ <u>function</u> to the NoRequest

status;

switching the traffic selector at the first <u>transport</u> network element to receive the network

traffic over the primary traffic circuit; and

sending the Revert Request message to the second transport network element.

23. (Previously presented) The method of claim 22 further comprising:

receiving a RevertRequest message at the first transport network element from the second

transport network element; and

sending a Revert message to the second transport network element to deactivate the

secondary traffic circuit if the sub-network connection protection mechanism is in the

NoRequest status.

24. (Currently Amended) The method of claim 23 further comprising switching the sub-network

connection protection <u>function</u> at the first transport network element to the NoRequest state

responsive to receiving a Revert message from the second transport network element.

25. (New) A network system having at least one input transport network element and at least one output transport network element that are interconnected by primary and secondary traffic circuits, each transport network element comprising:

    a traffic selector configured to switch the transport network element between receiving traffic over a primary traffic circuit and receiving traffic over a secondary traffic circuit;

    a split module configured to send traffic either to the primary traffic circuit or to the secondary traffic circuit; and

    an agent configured to control the traffic selector to switch between the primary traffic circuit and the secondary traffic circuit, and to control activation and deactivation of the secondary traffic circuit by exchanging messages with a corresponding remote agent associated with a remote transport network element, the agent being further configured to:

        switch the traffic selector to receive traffic on the secondary traffic circuit, and send an Activate message to the remote agent to activate the secondary traffic circuit if the secondary traffic circuit is not already activated, responsive to detecting a failure on the primary traffic circuit;

        switch the traffic selector to receive traffic on the primary traffic circuit, and send a RevertRequest message to the remote agent to request the remote agent to deactivate the previously activated secondary traffic circuit, responsive to detecting that the failure on the primary traffic circuit no longer exists; and

        send a Revert message to the remote agent to deactivate the secondary traffic circuit if the traffic selector is already switched to receive traffic on the primary traffic circuit, responsive to receiving a RevertRequest message from the remote agent.

26. (New) The network system of claim 25 wherein the agent comprises logic to implement a sub-network connection protection function having a NoRequest state and a AutoSwitch state, and wherein:

> the sub-network connection protection function, upon entering the NoRequest state,
>> indicates that no failure is detected at an input of the primary traffic circuit and that the traffic selector is switched to receive the network traffic over the primary traffic circuit; and

> the sub-network connection protection function, upon entering the AutoSwitch state,
>> indicates that a failure has been detected at the input to the primary traffic circuit and that the traffic selector is switched to receive the network traffic over the secondary traffic circuit.